

What is claimed:

- 1        1. A space saving home comfort device for providing a flow of  
2 exhaust air to an upper portion of a user's body at an elevation above a  
3 mounting surface comprising:
  - 4            a base for engaging said mounting surface;
  - 5            a support column having a first end connected to said base and  
6 extending upward from said base to a second end;
  - 7            a housing connected to said second end of said support column, said  
8 housing comprising a bottom, a top, and at least one outer wall extending  
9 between said bottom and said top, said housing having a longitudinal length  
10 that extends upward from said bottom to said top and having a maximum  
11 cross-sectional width taken along a horizontal plane through said housing,  
12 wherein said longitudinal length is at least 1.5 times said maximum cross-  
13 sectional width;
  - 14            a rise height defined by a distance from said second end of said  
15 support column to said mounting surface, wherein said rise height is at least  
16 40% of said longitudinal length of said housing;
  - 17            an air inlet and an air outlet in said housing; and
  - 18            an air generator disposed within said housing and in fluid  
19 communication with said air inlet and said air outlet.
- 1        2. The space saving home comfort device of claim 1, wherein said  
2 rise height is at least 12 inches.
- 1        3. The space saving home comfort device of claim 1, wherein said  
2 longitudinal length of said housing is less than about 30 inches.
- 1        4. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said  
3 base to said top of said housing, said overall length being at least 45 inches.

1        5. The space saving home comfort device of claim 1, wherein said  
2 maximum cross-section width of said housing is less than about 90% of said  
3 longitudinal length of said housing.

1        6. The space saving home comfort device of claim 1, wherein said  
2 maximum cross-section width of said housing is less than about 12 inches.

1        7. The space saving home comfort device of claim 1, further  
2 comprising a rotator mechanism for moving said housing relative to said  
3 base.

1        8. The space saving home comfort device of claim 7, wherein said  
2 rotator mechanism comprises an oscillator for oscillating said housing relative  
3 to said base about a substantially vertical axis of rotation.

1        9. The space saving home comfort device of claim 7, wherein said  
2 rotator mechanism comprises a rotator for one of continuous rotating and  
3 step-wise rotating said housing relative to said base about a substantially  
4 vertical axis of rotation.

1        10. The space saving home comfort device of claim 7, wherein said  
2 rotator mechanism is disposed between one of i) said base and said support  
3 column and ii) said support column and said housing.

1        11. The space saving home comfort device of claim 1, wherein said  
2 housing rotates about an axis of rotation, said axis of rotation substantially  
3 aligned with a longitudinal axis of said support column.

1        12. The space saving home comfort device of claim 1, wherein said  
2 housing rotates about a first axis of rotation and said air generator has an  
3 second rotational axis, said first axis of rotation substantially parallel to said  
4 second rotational axis.

1        13. The space saving home comfort device of claim 1, further  
2 comprising:

3           an area of oscillation defined by an area of movement of said housing  
4   about an axis of rotation, a maximum width of said area of oscillation taken  
5   along a horizontal plane through said housing; and

6           a base envelope defined by an area taken along a horizontal plane  
7   through a lower portion of said base, a maximum width of said base  
8   envelope taken along a horizontal plane through said base,

9           wherein said maximum width of said area of oscillation is less than  
10   said maximum width of said base envelope.

1         14. The space saving home comfort device of claim 13, wherein said  
2   maximum width of said area of oscillation is less than 70% of said maximum  
3   width of said base envelope.

1         15. The space saving home comfort device of claim 13, wherein said  
2   maximum width of said area of oscillation is substantially equal to said  
3   maximum cross-sectional width through said housing.

1         16. The space saving home comfort device of claim 1, wherein said  
2   air generator further comprises a high velocity, low thrust blower assembly  
3   wherein, said blower assembly includes at least one impeller and generates  
4   said flow of exhaust air having a maximum velocity of at least about 400 fpm  
5   when measured 6 feet from said housing; and

6           said blower assembly generates a thrust between about 0.1 lbs and  
7   about 0.3 lbs in a direction opposite to a direction of said flow of exhaust air  
8   to minimize a resultant thrust to allow said base.

1         17. The space saving home comfort device of claim 16, wherein  
2   said flow of exhaust air has an overall area that substantially conforms to a  
3   width and a height of a user's torso.

1         18. The space saving home comfort device of claim 16, wherein the  
2   length of said impeller or the combined length of multiple impellers is less  
3   than 45% of an overall length of said device, wherein said overall length is  
4   defined by a distance from a bottom of said base to said top of said housing.

1        19. The space saving home comfort device of claim 1, wherein said  
2 air generator comprises a unitary blower assembly.

1        20. The space saving home comfort device of claim 19, wherein said  
2 unitary blower assembly further comprises a centrifugal blower assembly  
3 comprising:

4              a motor having at least one output shaft;

5              at least one rotating impeller connected to said at least one output  
6 shaft; and

7              a cartridge having a scroll casing, an air inlet port, and an air outlet  
8 port,

9              wherein said motor and said at least one impeller are housed in said  
10 cartridge.

1        21. The space saving home comfort device of claim 20, wherein said  
2 motor and said at least one impeller are pre-assembled in said cartridge, and  
3 said pre-assembled cartridge which can be pre-tested and installed in said  
4 housing during assembly of said home comfort device.

1        22. The space saving home comfort device of claim 1, wherein said  
2 rise height is between about 40% to about 400% of said longitudinal length  
3 of said housing.

1        23. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said  
3 base to said top of said housing, and said rise height is greater than about  
4 29% of said overall length of said home comfort device.

1        24. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said  
3 base to said top of said housing, and said rise height is between about 29%  
4 and about 80% of said overall length of said home comfort device.

1        25. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said

3 base to said top of said housing, and said longitudinal length of said housing  
4 is less than about 68% of said overall length of said home comfort device.

1        26. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said  
3 base to said top of said housing, and said longitudinal length of said housing  
4 is between about 20% and about 68% of said overall length of said home  
5 comfort device.

1        27. The space saving home comfort device of claim 1, wherein an  
2 overall length of said device is defined by a distance from a bottom of said  
3 base to said top of said housing, and said rise height is at least 12 inches,  
4 said longitudinal length of said housing is between about 15 inches and about  
5 30 inches, and said overall length of said home comfort device is at least 45  
6 inches.

1        28. The space saving home comfort device of claim 1, further  
2 comprising a minimum set back distance between a leading edge of an  
3 impeller of said air generator and an air outlet grill of said housing, wherein  
4 said minimum set back distance is at least 20% of a diameter of said  
5 impeller.

1        29. The space saving home comfort device of claim 1, wherein said  
2 support column further comprises an adjustable support column for adjusting  
3 a height of the housing above said mounting surface.

1        30. The space saving home comfort device of claim 1, wherein said  
2 flow of exhaust air has an overall area that substantially conforms to a width  
3 and a height of a user's torso.

1        31. A space saving home comfort device comprising:  
2            a base for stabilizing said home comfort device on a mounting surface;  
3            a housing having an elongated shape, a longitudinal length of said  
4 housing being at least 1.5 times a maximum cross-sectional width of said  
5 housing taken along a horizontal plane of said housing;

6           a support column for elevating said housing above said base;

7           a non-operating configuration when said home comfort device is

8        disassembled for shipment from a place of manufacturing to a place of sale,

9        in said non-operating configuration said home comfort device comprises:

10          said base disconnected from said support column; and

11          said support column disconnected from said housing;

12          an operating configuration when said home comfort device is

13        assembled for operation, in said operating configuration said home comfort

14        device comprises:

15          said base having a maximum cross-sectional width;

16          said support column having a first end connected to said base and

17        extending upward to a second end;

18          a rise height defined by a distance from said second end of said

19        support column above a bottom of said base, wherein said rise height is at

20        least 40% of said longitudinal length of said housing; and

21          said housing connected to said second end of said support column,

22        said longitudinal length of said housing extending upward.

1           32. The space saving home comfort device of claim 31, wherein said

2        base is a split base having at least a first portion and a second portion that

3        can be separated for compact storage in said non-operating configuration

4        and can be assembled as said base in said operating configuration to support

5        said housing on said riser.

1           33. The space saving home comfort device of claim 31, wherein said

2        support column is a collapsible support column having at least two members,

3        wherein each of said at least two members have substantially the same

4        length and respective different diameters such that each successive smaller

5        diameter member slides into an adjacent member having a larger diameter,

6        wherein in said non-operating configuration said members are collapsed and

7        in said operating configuration said members are adjustable between a

8 minimum length where said members are substantially collapsed and a  
9 maximum length wherein said members are extended with respect to one  
10 another.

1       34     The space saving home comfort device of claim 31, wherein said  
2 support column further comprises at least two members, wherein each of  
3 said at least two members can be separated from one another when said  
4 home comfort device is in said non-operating configuration.

1       35     The space saving home comfort device of claim 31, wherein said  
2 support column and said base are combined into a single support member.

1       36.    The space saving home comfort device of claim 35, wherein said  
2 support further comprises more than one component assembled together to  
3 form said support.

1       37.    The space saving home comfort device of claim 35, wherein said  
2 support member is decoupled from said housing and said housing is disposed  
3 within said support in a non-operating configuration for shipment from a  
4 place of manufacturing to a place of sale.

1       38.    The space saving home comfort device of claim 31, further  
2 comprising an air generator wherein said air generator further comprises one  
3 of a transverse blower assembly and a unitary blower assembly.

1       39.    The space saving home comfort device of claim 31, further  
2 comprising an air generator wherein said air generator comprises a high  
3 velocity, low thrust blower assembly, said maximum cross-sectional width of  
4 said housing is less than 12 inches and said maximum cross-sectional width  
5 of said base is less than 20 inches, said maximum cross-sectional width of  
6 said housing is less than said maximum cross-sectional width of said base,  
7 said blower assembly generates a flow of exhaust air of at least about 400  
8 fpm, when measured 6 feet from said housing, and said blower assembly  
9 generates a low thrust between about 0.1 lbs and about 0.3 lbs in a direction  
10 opposite to a direction of said flow of exhaust air to minimize a resultant  
11 thrust.

1       40. The space saving home comfort device of claim 39, wherein said  
2 flow of exhaust air has an overall area that substantially conforms to a width  
3 and a height of a user's torso.

1       41. The space saving home comfort device of claim 31, wherein said  
2 home comfort device in said operating configuration further comprises said  
3 housing, where a maximum cross-sectional width of said housing is less than  
4 about 90% of said longitudinal length of said housing.

1       42. The space saving home comfort device of claim 31, wherein said  
2 rise height is between about 40% and about 400% of said longitudinal length  
3 of said housing.

1       43. The space saving home comfort device of claim 31, further  
2 comprising an overall length of said home comfort device defined by a  
3 distance between a bottom of said base and a top of said housing, wherein  
4 said rise height is greater than about 29% of said overall length of said home  
5 comfort device.

1       44. The space saving home comfort device of claim 31, further  
2 comprising an overall length of said home comfort device defined by a  
3 distance between a bottom of said base and a top of said housing, wherein  
4 said rise height is between about 29% and about 80% of said overall length  
5 of said home comfort device.

1       45. The space saving home comfort device of claim 31, further  
2 comprising an overall length of said home comfort device defined by a  
3 distance between a bottom of said base and a top of said housing, wherein  
4 said longitudinal length of housing is less than about 68% of said overall  
5 length of said home comfort device.

1       46. The space saving home comfort device of claim 31, further  
2 comprising an overall length of said home comfort device defined by a  
3 distance between a bottom of said base and a top of said housing, wherein  
4 said longitudinal length of housing is between about 20% and about 68% of  
5 said overall length of said home comfort device.

1       47. The space saving home comfort device of claim 31, further  
2 comprising an overall length of said home comfort device defined by a  
3 distance between a bottom of said base and a top of said housing, wherein  
4 said rise height is at least 12 inches, said longitudinal length of said housing  
5 is between about 15 inched and about 30 inches, and said overall length of  
6 said home comfort device is at least 45 inches.

1       48. The space saving home comfort device of claim 31, wherein said  
2 home comfort device in said non-operating configuration further comprises a  
3 box containing said base, said support column, and said housing, wherein  
4 said box has a length less than about 23 inches, a width less than about 9  
5 inches, and a height of less than about 9 inches.

1       49. The space saving home comfort device of claim 31, further  
2 comprising an air generator disposed within said housing.

1       50. The space saving home comfort device of claim 49, wherein said  
2 air generator comprises a unitary blower assembly, said unitary blower  
3 assembly further comprising a centrifugal blower assembly including i) a  
4 motor having at least one output shaft; ii) at least one rotating impeller  
5 connected to said at least one output shaft; and iii) a cartridge having a  
6 scroll casing, an air inlet port, and an air outlet port, said motor and said at  
7 least one impeller being housed in said cartridge.

1       51. The space saving home comfort device of claim 50, wherein said  
2 motor and said at least one impeller are pre-assembled in said cartridge, and  
3 said pre-assembled cartridge is pre-tested and installed in said housing  
4 during assembly of said home comfort device from said non-operating  
5 configuration to said operating configuration.

1       52. The space saving home comfort device of claim 31, further  
2 comprising an air generator, wherein said air generator is used to generate a  
3 flow of exhaust air, said flow of exhaust air having an overall area that  
4 conforms to a width and a height of a user's torso.

5        53. A space saving home comfort device for providing a flow of air  
6 to an upper portion of a user's body at an elevation above a mounting  
7 surface comprising:

8              a base for engaging said mounting surface;

9              a support column having a first end connected to said base and  
10 extending upward from said base to a second end;

11              a housing connected to said second end of said support column, said  
12 housing comprising a bottom, a top, and at least one outer wall extending  
13 between said bottom and said top, said housing having a longitudinal length  
14 of less than 30 inches extending upward from said bottom to said top and  
15 having a maximum cross-sectional width taken along a horizontal plane  
16 through said housing, wherein said longitudinal length is at least 1.5 times  
17 said maximum cross-sectional width;

18              a rise height of at least 12 inches defined by a distance from said  
19 second end of said support column to said mounting surface, wherein said  
20 rise height is at least 40% of said longitudinal length of said housing;

21              an air inlet and an air outlet in said housing;

22              an air generator disposed within said housing and in fluid  
23 communication with said air inlet and said air outlet, said air generator  
24 providing exhaust air having an overall area when measured at six feet from  
25 said housing that conforms to a width and a height of a user's torso; and

26              an overall length defined by a distance from a bottom of said base to  
27 said top of said housing, said overall length being at least 45 inches,

28              wherein said housing rotates about a first axis of rotation and said air  
29 generator has an second rotational axis, said first axis of rotation  
30 substantially parallel to said second rotational axis.